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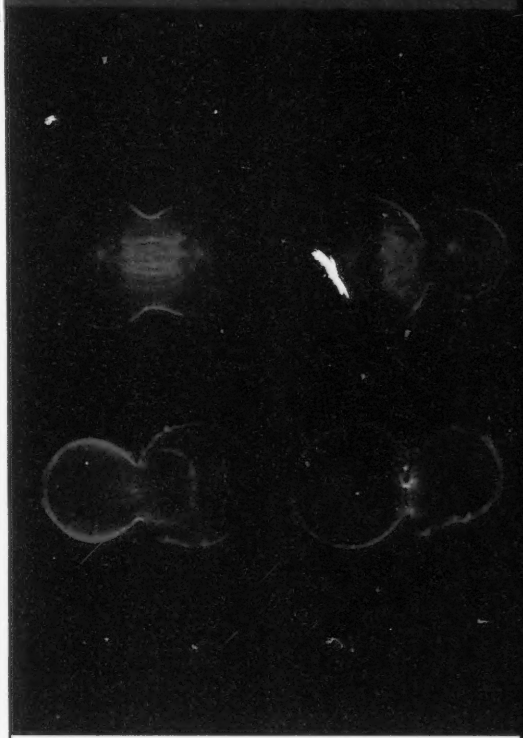

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Oscillating contractions of polar cortical myosin (green) rocks the mitotic spindle (red) back and forth in cells with abnormally long astral microtubules or—as pictured here—cells lacking the cleavage furrow protein anillin.
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89 Mps1 directs the assembly of Cdc20 inhibitory complexes during interphase and mitosis to control M phase timing and spindle checkpoint signaling
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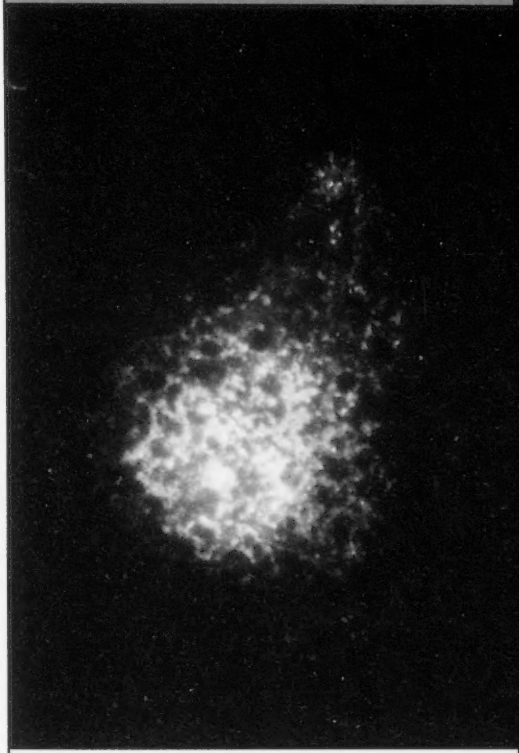

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An insect cell infected with the baculovirus AcMNPV accumulates viral particles (green) at the tips of cell surface spikes containing F-actin (red). Ohkawa et al. reveal that actin polymerization propels the virus around the cytoplasm, speeding its transit to both the nucleus and the cell surface.

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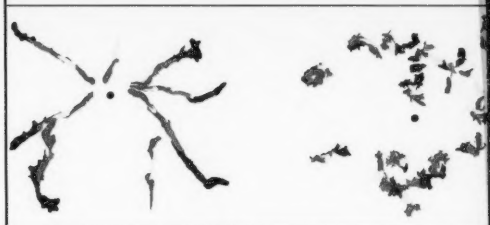

Unlike wild-type cells (left), *Dictyostelia* expressing an activated form of the RasC GTPase (right) fail to migrate toward a source of cAMP (black dot). Cai et al. demonstrate that RasC regulates chemotaxis by controlling the temporal and spatial activity of the kinase complex TORC2.
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377 Model-based dissection of CD95 signaling dynamics reveals both a pro- and antiapoptotic role of c-FLIP$_L$
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A proximity ligation assay identifies complexes (red) containing the Notch1 receptor and the heparan sulfate proteoglycan Syndecan-3 in skeletal muscle satellite cells stained for Syndecan-4 (green). Pisconti et al. show that Syndecan-3 is required for Notch1's cleavage by the metalloproteinase ADAM17 and downstream signaling controlling satellite cell proliferation and differentiation.
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391 S-glutathionylation activates STIM1 and alters mitochondrial homeostasis
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407 *Drosophila* Mtm and class II PI3K coregulate a PI(3)P pool with cortical and endolysosomal functions
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479 Type I PIPK-α regulates directed cell migration by modulating Rac1 plasma membrane targeting and activation
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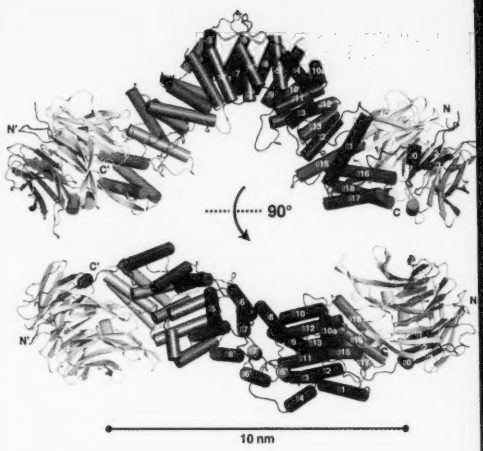

Whittle and Schwartz solve the crystal structure of the tetrameric complex formed by the COPII vesicle coat protein Sec13 (yellow/orange) and the central domain of Sec16 (blue/gray), suggesting that Sec16 acts as a template for coat assembly.
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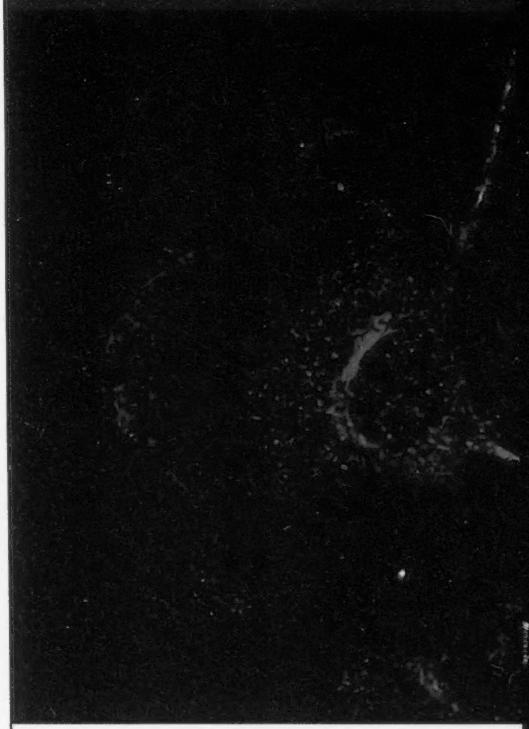

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An artistically rendered image showing the spatial separation of endocytic pathways in a migrating fibroblast. Clathrin-coated vesicles (blue) are nonpolarized, while clathrin-independent carriers (red) localize to the leading edge and caveolae (green) form at the rear of the cell. Howes et al. reveal that clathrin-independent internalization is the predominant endocytic pathway in fibroblasts.
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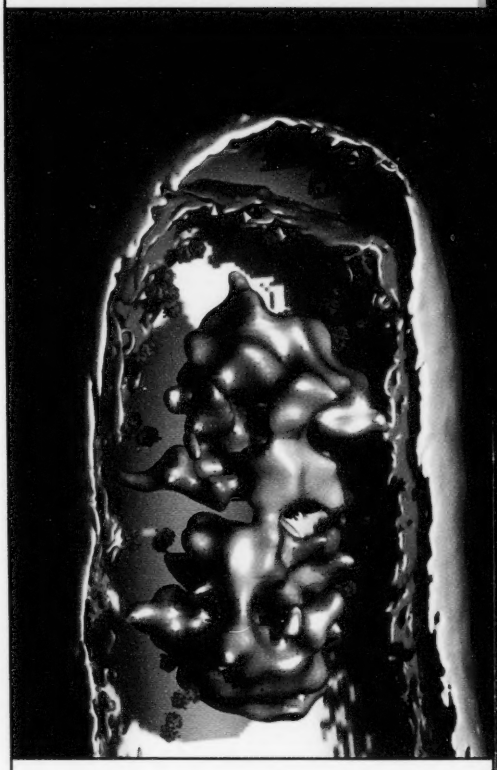

Ortiz et al. use cryo-electron tomography to visualize the "hibernating" ribosome dimers that form in nutritionally stressed *E. coli*. An enlarged dimer is shown in the foreground, out of scale with the bacterial cell behind it.
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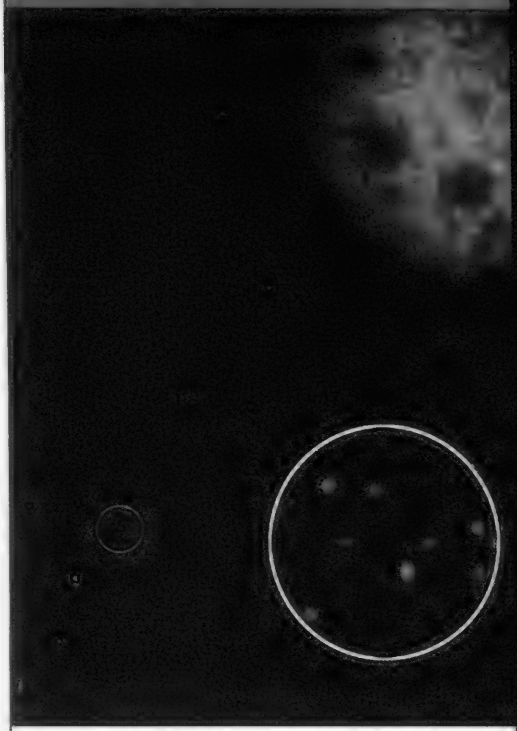

On the cover

Wiedemann et al. identify two novel variants of histone H3. Super-resolution 3D-SIM microscopy of a starved U20S cell shows that these histones (green) mainly localize to regions where chromatin (blue) is less condensed. A conventional wide-field image of the same nucleus is at the top right.
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911 Two distinct mechanisms target GAD67 to vesicular pathways and presynaptic clusters
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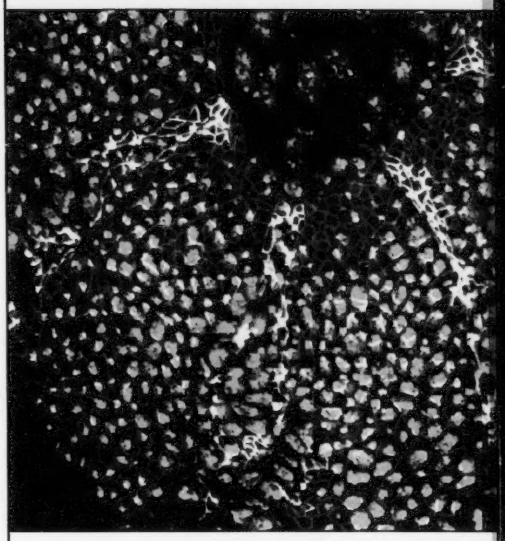
927 CEP290 tethers flagellar transition zone microtubules to the membrane and regulates flagellar protein content
Branch Craige, Che-Chia Tsao, Dennis R. Diener, Yuqing Hou, Karl-Ferdinand Lechtreck, Joel L. Rosenbaum, and George B. Witman

Corrections

941 *Drosophila* Mtm and class II PI3K coregulate a PI(3)P pool with cortical and endolysosomal functions
Michaella Velichkova, Joe Juan, Pavan Kadandale, Steve Jean, Inês Ribeiro, Vignesh Raman, Chris Stefan, and Amy A. Kiger



Expressing a non-phosphorylatable version of the polarity protein Bazooka (green) in segments of *Drosophila* epithelia causes mislocalization of the apical membrane proteins aPKC and Crumbs (magenta), disrupting epithelial morphogenesis.
See page 751.

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• α-Synuclein leaves autophagy feeling compromised
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975 Elm1 kinase activates the spindle position checkpoint kinase Kin4
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991 Quantitative image analysis identifies pVHL as a key regulator of microtubule dynamic instability
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1005 An Atg9-containing compartment that functions in the early steps of autophagosome biogenesis
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1023 α-Synuclein impairs macroautophagy: implications for Parkinson's disease
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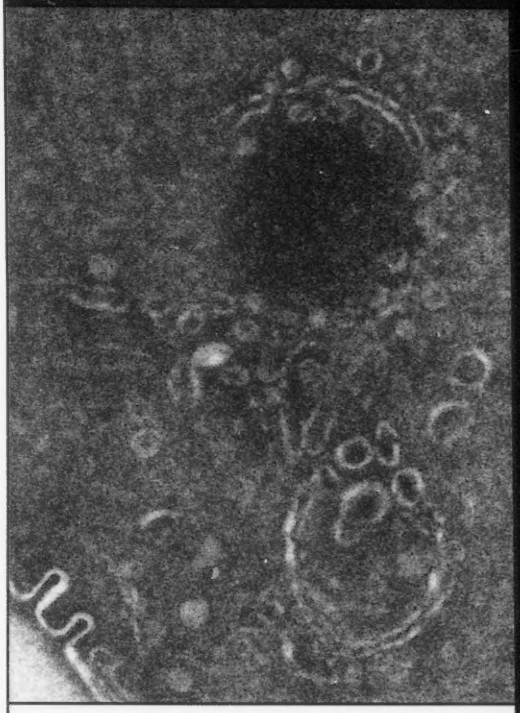
1039 *Drosophila* IAP antagonists form multimeric complexes to promote cell death
Cristinel Sandu, Hyung Don Ryoo, and Hermann Steller

Articles with related stories in the IN THIS ISSUE section have page numbers in RED; articles related to IN FOCUS have page numbers in BLUE; articles with COMMENTS have page numbers in GREEN.



On the cover

Electron microscopy of a budding yeast cell illustrates the de novo biogenesis of double-membraned vesicles used for autophagy and the related Cvt pathway. A cluster of vesicles and tubules forms around an electron-dense structure corresponding to the Cvt complex, which contains aminopeptidase I oligomers destined for the yeast vacuole.
See page 1005.

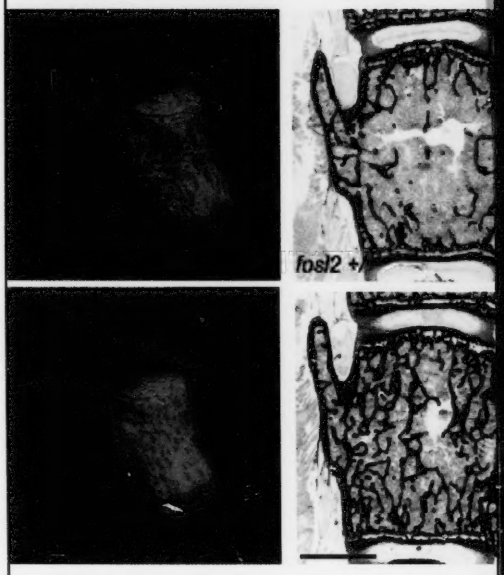
1053 Phosphoinositide 3-kinase δ regulates membrane fission of Golgi carriers for selective cytokine secretion
Pei Ching Low, Ryo Misaki, Kate Schroder, Amanda C. Stanley, Matthew J. Sweet, Rohan D. Teasdale, Bart Vanhaesebroeck, Frédéric A. Meunier, Tomohiko Taguchi, and Jennifer L. Stow

1067 Two distinct secretory vesicle–priming steps in adrenal chromaffin cells
Yuanyuan Liu, Claudia Schirra, Ludwig Edelmann, Ulf Matti, JeongSeop Rhee, Detlef Hof, Dieter Bruns, Nils Brose, Heiko Rieger, David R. Stevens, and Jens Rettig

1079 Exosome release of β-catenin: a novel mechanism that antagonizes Wnt signaling
Arthit Chairoungdua, Danielle L. Smith, Pierre Pochard, Michael Hull, and Michael J. Caplan

1093 Fra-2/AP-1 controls bone formation by regulating osteoblast differentiation and collagen production
Aline Bozec, Latifa Bakiri, Maria Jimenez, Thorsten Schinke, Michael Amling, and Erwin F. Wagner

1107 Fibrillin-1 and -2 differentially modulate endogenous TGF-β and BMP bioavailability during bone formation
Harikiran Nistala, Sui Lee-Arteaga, Silvia Smaldone, Gabriella Siciliano, Luca Carta, Robert N. Ono, Gerhard Sengle, Emilio Arteaga-Solis, Regis Levasseur, Patricia Ducy, Lynn Y. Sakai, Gerard Karsenty, and Francesco Ramirez



Three-month-old mice overexpressing the transcription factor Fra-2 have larger bones (bottom panels) than control mice (top panels) due to increased osteoblast differentiation.
See page 1093.